DOCUMENT RESUME

ED 331 197 EC 300 178

AUTHOR Preisler, Gunilla
TITLE Development of Communication in Deaf Infants.
SPONS AGENCY Swedish Ministry of Health and Social Affairs, Stockholm. Commission for Social Research.
PUB DATE Aug 90
NOTE 14p.; Paper presented at the Biennial International ISAAC Conference on Augmentative and Alternative Communication (4th, Stockholm, Sweden, August 12-16, 1990).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Blindness; *Deafness; Foreign Countries; Infants; *Interaction Process Analysis; *Language Acquisition; Longitudinal Studies; Mothers; *Parent Child Relationship; *Sign Language
IDENTIFIERS *Disabled Parents

ABSTRACT

This longitudinal study looked at how communication developed in seven deaf infants (ages 6-18 months) with either deaf or hearing parents. The children were video- recorded in interactional settings with their parents in their home every second month. A parallel study was conducted with seven blind infants and three severely visually impaired infants. Examples are given to illustrate first, interactions between deaf infants and their deaf parents and second, interactions between deaf infants and their hearing parents. Among observations were that deaf parents did not produce a continuous flow of signs when communicating with the child but modified their way of signing from single signs presented repeatedly and in the child's visual field to two or three signs; that they went from primarily naming objects to describing qualities and attributes and asking questions. Hearing parents did not respond to early infant attempts at expression but were focused on their own signing attempts. In comparison with blind children, deaf children often had a vocabulary of 10-12 signs by one year whereas blind infants uttered their first words at a mean age of 16 months, possibly due to the difficulty blind infants have in sharing their awareness of objects with their caregiver. Appended is a checklist of infant/mother communicative behaviors. (Nine references) (DB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

STOCKHOLM UNIVERSITY
Department of psychology

ED331197

Development of communication in deaf infants.

by

Gunilla Preisler, Ph D

Department of Psychology, Stockholm University

Paper presented at The Fourth Biennal International ISAAC Conference on Augmentative and Alternative Communication
August 13- 16, 1990

BEST COPY AVAILABLE

EC 300 178

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Gunilla Preisler

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Acknowledgements: This research was supported by grants from the Swedish Ministry of Health and Social Affairs, The Commission for Social Research

INTRODUCTION

During recent years the study of infant development has given us new insights into the life of the young child. We now have scientific evidence that the infant is equipped from birth- and even earlier - with perceptual and cognitive abilities of a kind that was not supposed only a couple of decades ago.

We now look upon the infant as

- a competent individual who in some sense recognizes his/her mother from birth,
- an individual who has memories from fetal life
- and above all- an individual striving to interact with his/her mother or father from the first minutes of life.

The conclusion today is that we consider the infant as having a motive for communication - for intersubjective exchanges. (Trevarthen, 1988). This is the case for all infants, even for infants with blindness, deafness or infants with multiple functional disabilities.

A LONGITUDINAL STUDY OF MOTHER-DEAF INFANT INTERACTION

This presentation will focus upon the question of how communication develops in deaf infants during the age period 6-18 months. Results from a longitudinal study of deaf mother-deaf infant, hearing mother- deaf infant interaction will be presented (Preisler & Malmström, 1990). The study is part of a research project aiming at studying the development of communication and language as well as the development of play and social interaction in children with functional disabilities, particularily children with hearing or visual impairments, from 0-7 years of age (Preisler, 1983; Preisler and Palmer, 1986; 1989; Preisler, 1988; 1990).

The objective with the present study is to describe the development of communication in deaf infants with special focus on the following topics:

- the age when the infants start showing communicative intent and by which means

- the age when the infants start sharing experiences with their

mothers (person - person - object communication) and by which means

- differencies and similarities between deaf and hearing mothers´communicative strategies

-differencies and similarities in the development of prelinguistic and linguistic communication in deaf infants with hearing mothers and with deaf mothers.

Comparisons between the development of communication in deaf and in blind infants will also be made.

METHOD

Procedure and subjects

The study is descriptive and qualitative. Seven deaf children have been video-recorded in natural interactional settings with their parents in their home-environment every second month.
The youngest child in the study was 6 months old at the time of the first video-recording, the others between 9 and15 months. The three younger children, three boys, had deaf parents, the others, two girls and two boys, had hearing parents. The deaf parents were native signers. The hearing parents had no knowledge about sign language until their infants were diagnosed as deaf. Observations of the deaf infants with hearing parents started when the infants were between 14-16 months old, as diagnosis of deafness was not made until around the age of 12 months.

Analyses

In order to describe the expressive behaviors of the infants and of the mothers, a check list of behavior units were used when transcribing the interactions. The interactions were then coded in order to identify how mothers and infants reciprocated to each other´s communication (the checklist will be found in Appendix A). The procedure is identical with a parallel study of blind infants and their parents which enables us to make some comparisons between the development of communication in blind and in deaf infants (Preisler, in press)

RESULTS:

1. Interaction between deaf infants and their deaf parents:

The youngest infant in the study was 6 months old at the time of the first video recording. Mother-infant interaction during this age period is very much concerned about sharing affects and joy, creating an intersubjective relationship. Parents share affects with their infants by vocalizing in response to their infants´ cooing or vocalizing behaviour or by imitating their infants´ facial expressions (Stern, 1985). Observations of this mother and son in interaction showed that the deaf mother was also sharing affect and joy with her son, by imitating his facial expressions.

> *The infant is sitting in his high chair by the kitchen table, exploring a toy. His mother is sitting at his side.:*
>
> *The mother starts to play with his hands. The boy looks at his own hand and then at his mothers´ hand, and starts to laugh.There is no eye-to-eye contact.* (Probably, the mother does not notice his reactions, as she cannot hear his laughter).
> *She repeats the play. The boy plays with his toy. Finally the mother gets eye-to-eye contact and she starts to imitate the boy´s facial expressions adding a slightly exaggerated facial expression. The boy smiles and laughs. (Time: 03.56-04.37)*

Characteristic of this mother-infant interaction at the age of 6 months, was that the boy could either be engaged in exploring or manipulating objects, or engaged in plays with his mother, but he could not yet share his interest in objects with his mother. This is also a characteristic feature in "normal" mother- infant interaction (Trevarthen, 1988). At this age, the boy could show communicative intent by means of deictic gazes or by body movements.

At this age infants have difficulties following the line of a pointing. They look at the pointing hand or finger, not towards the object that the pointing is indicating. Pointings are a major characteristic of sign language. In the next sequence, the deaf mother tries to make her son aware of their significance.

> *The mother points at the lamp. The boy looks at the lamp. The mother repeats her pointing gesture towards the lamp. This time the boy only looks at his mother´s face.* (By her gestures and actions it is clear that she wants him to look at the lamp and then at her hand,

showing the sign for LAMP).

At the same time, an older sister is standing by the switch, turning the light on and off. The boy looks at her. He then looks at the lamp and his attention is divided between the mother, the sister and the lamp.After a couple of seconds, he starts cooing joyfully while looking at the lamp. His left hand starts to move. He looks at the lamp. (Time: 06.25-08.55)

In slow motion it can be observed that he moves his hand approximately 16 times - he is producing the sign for *lamp*. The sequence ends with the mother making a comment that he has command of the sign for lamp.

Observations of the deaf mother-deaf son interaction were made again when he was 8 months old.

The mother and the infant are sitting at the same place as before. The mother contacts him by gently touching his body, then signs LAMP in front of his face. She repeats the sign, adding a WHERE to the LAMP-sign, meaning "Where is the lamp?" She waits for his response. He starts to grunt and then orients his attention to the lamp, then looks at his mother, and they have eye-to -eye contact, She points at the lamp and repeats the sign.(Time: 26.36-26..56)

The boy could now follow a pointing and started to grasp the referential meaning of a pointing. This is what hearing infants also do at this age.

At this age, the mother did not give him as much help as she did two months earlier. She gave him a sign and expected him to answer by deictic gazes. An analysis of his gaze behavior showed that he was now looking more at his mother than 2 months earlier, 18% of the time he looked at his mother from a three minute sequence from which the above observation was made, compared to 8 % in a similar situation at the age of 6 months. At the age of 8 months, he seemed more aware of that in order to communicate, to get information and to give information, eye- to- eye contact is essential. He also started to follow, like in a tennis match, other members of the family signing to each other.

At the age of 8 months the boy started to imitate the movements of different objects and actions and used these body signs as a means of communication. "Body signs" were the first symbolic communicative expressions used by all of the children in the study.

Observations of blind infants indicate that their first symbolic

communication is also expressed by body or hand/arm movements involved in a certain action; like jumping up and down the way a well-known play is performed: telling the mother ONE MORE TIME; or splashing the hands up and down as the way the infant do when taking a bath and playing with water (Preisler, 1990).

The boy and his mother were observed again when he was 9 months old. Again, the mother and the son are sitting by the kitchen table and the mother repeats the lamp-scene.

> *The mother asks in signs, WHERE LAMP? The boy immediately looks at the lamp. He is smiling.(Time: 57.40-58.02)*

A second deaf child of deaf parents entered the research project at this age interval, 9 months. The lamp was a very interesting object also in this family.

> *The father asks, in signs, WHERE IS THE LAMP? The boy looks at the lamp. The father repeats the signed question, the infant looks at the lamp once more. The father then asks WHERE IS THE CLOCK? The boy looks at the clock on the wall. Then he starts to move his whole body back and forth as a pendylum (Time:41.19-41.47).*

At the age of nine months the two deaf boys were observed to share feelings and thoughts *about something with somebody*, just the way a hearing child do at this age.

At 12 months, a third deaf infant with deaf parents were observed. It was their first child. These parents were not as aware as the two other deaf boys´ parents about how to communicate with signs to a young deaf child; that sign language means using a visually regulated system of symbols. Observations of the infant and his parents showed that many of the signs the parents produced were outside of the child´s visual field. This meant that the flow of communication was not as smooth as in the case of the two other deaf infants. There were mismatches at several instances, but gradually parents and child learned how to adapt to one another.

The other two boys now started to use sign language as a means of making comments on their own activities and on objects they were handling. The children´s sign vocabulary was now around 10-12 signs.

At the age of13-16 months the three deaf children seemed more interested in using signs in communication. They started asking

questions by means of pointings and/or by producing single signs. They were also often playing with symbols as in pretend plays.

Two of the three deaf parents were very aware of their infants´ need of language as well as their need of independence; they observed the infants´ activities, made comments in signs when appropriate but they seldom interrupted their infants´ play by giving signs.

At the age of 17-18 months, the children started refering to non-present persons or actions and they also started to correct their own sign language when they discovered that they did not sign properly. The parents were now observed to use a more elaborated sign language system, both in terms of quantity and of content.

Observations of the deaf infants and their deaf mothers or fathers showed that the parents did not produce a continuous flow of signs when communicating with their children. Instead, they modified their way of signing from single signs, presented repeatedly and mostly in the child´s visual field, to two and three signs; from primarily naming objects to describing qualities and attributes as well as asking questions about the objects.

2. Interaction between deaf infants and their hearing parents.

The four hearing parent pairs were informed by their audiologists about sign language and they were recommended to start using signs. They were informed about sign language courses and given a couple of signs to start with. When first visited by the research team, some parents had started their sign language education, others were still waiting for an opportunity to start a course. One of the deaf girls responded immediately to signs and quickly started to use signs herself. This was more or less the case for the other girl, but not the case for the two boys, according to their parents.

Detailed registrations of the hearing parents´ communicative expressions during the firsts video-recorded observations, when the infants were between 14 and16 months old, showed that they were very concentrated on their own signing; how to produce signs, how to make comments in signs to all activities in the environment as a compensation of all the "small talk" hearing parents give to hearing infants. But mothers to hearing children do not talk all the time to their infants in the sense of giving them

words for objects or actions. The way mothers talk to their infants is mostly a way of showing affection and love. It is a phatic communication.They do not expect the infants to understand the individual words - when they think they do,they alter their way of communicating, they start to talk slowly, articulating every word. SAY AFTER ME: MUMMY. SAY LAMP etc, just as the deaf parents did.

The hearing mothers did not yet seem aware of the importance of watching the infants´ own communicative expressions as well as of making certain that the infants were attentive to them.

Three of the hearing mothers complained about their infants not signing -in the case of the two boys - not even interested in signing. But detailed observations of the infants expressions from the video-recordings showed that they did sign. However, they did not produce adult-like signs with their hands. Their first signs were these body signs, mentioned above. *Radio* was dancing movements. *Clock* could even be produced with the toungue. *Teddy bear* or *Ape* could be an imitation of the behavior of the bear or the ape and so on.

The essential point here is that the mothers did not respond to these expressions. They did not observe them or at least they did not seem to understand them. They did not expect signs from the bodies, only from the hands.

The infants were very attentive to their mothers, looking at them to a high extent, as if they were expecting information from this channel.

At the age of 17-19 months, the four deaf infants with hearing parents had started to communicate with conventional signs. They all seemed very interested in communication. They could both pose and answer questions. At this age the content of the communication was not only about naming objects but rather taking part in dialogues, and to be involved in pretense plays.

A couple of months after diagnosis the deaf infants and their hearing parents seemed to have adopted to a visual manual way of communicating and both parents and infants became skilled in using signs.

3. A comparison between the development of communication in deaf infants and in blind infants.

As was mentioned earlier, a parallel study of blind infant-sighted mother interaction has been undertaken. Seven blind infants and 3 severely visually impaired infants have been observed in natural interactional settings with their parents (Preisler, in press).

An analysis of the development of communication indicated that the blind infants could participate in dialogue-like exchanges with their parents, that they could share affection and joy and that they could take part in games of different kinds. The difference between a sighted and a non-sighted infant is that the blind infants have *difficulties in sharing their awareness of objects with their mothers*. They can not the same way as a sighted infant cooperate in communication about objects in the external world. Pointings and visual contact is missing, and these signals are forceful in communication. The blind infants in they study were generally later in their earlier development of motoric skills as well as in their early language development. Many deaf children have a vocabulary of 10-12 signs at the age of one year. The blind infants uttered their first words at a mean age of 16 months.

DISCUSSION

The results of the present study have practical implications especially for parental guiding. Today hearing parents are recommended to use signs; they are recommended to start sign language courses. But the sign language courses are mostly dealing with adult signing, at least in Sweden. Adult-adult communication is the model, while it ought to be parent-infant interaction. How you share feelings, affections and love. How you at a later point in age can explain the names of different objects, and the names of the members of your family, etc. How you can read books and how you can play and mock and have fun with your child.

Our recommendation is to start the early parental guidance by making the parents aware of how parents interact with their infants at a particular age. How they play, mock, take part in ´give and take` games, ´peek-a-boo` games etc; that they can interact a

lot with their infants even before knowing any formal signs. Establishing an emotional bond, a trust between parent and child, which is the most important task during the early period of life, can be made without using symbolic means of communication.

The next step is to make the parents aware of that *signing means using a visual communication system.* It means that the parent must first make certain that the child is attending visually to the parent. Signing is further a careful linking of symbols and objects or actions. Gradually meaning is established. Thereafter they can start using single signs, just the way many deaf mothers do.

It is important to first make the parents understand that *communication* is much more than using individual signs; it is a question of *sharing experiences and affections.* You can do quite well without symbols in these respects. Showing the mothers videos with deaf parents communicating with their deaf infants could be one way of giving hearing parents language models. But before doing that, it is important to start with the actual infant-mother pair, to make video-recordings of them in some simple interactional settings, register what and how they are communicating, and giving them feed back on what they do, especially giving feed-back on the successful parts.

In the present study we have shown excerpts, particularily "successful" interactions from the video-recorded material to each parent at regular intervals. According to the parents it was very rewarding to be given opportunities to observe their infants as well as their own behaviours in detail. They became more aware of that even simple and very common acts in mother-infant interaction have meaning and can be important for the future development of the infant. Video-feedback could be used by the families educational therapist or by other professionals giving advise to the families.

REFERENCES

Preisler, G. (1983). Deaf children in communication. Stockholm University: Department of Psychology (Doctorial dissertation).

Preisler,G. (1988). The development of communicative skills in blind infants. Lund University: Department of Linguistics. *Paper no* 2, 125-126.

Preisler,G. (1990). The development of communication in blind infants. in S.Aitken; M. Buultjens and S.J Spungin (Eds.), *Realities and opportunites.* American Foundation for the Blind. Proceeding of the International Symposium on Visually Impaired Infants and Young Children: Birth to Seven. Edinburgh, Scotland 7th to 13th of August, 1988.

Preisler,G. (in press). Early patterns of interaction between blind infants and their sighted mothers. *Child care, health and development.*

Preisler,G. and Palmer,C. (1986). The function of vocalization in early parent-blind child interaction. In B.Lindblom and R. Zetterström (Eds.), Precursors of early speech. *Wenner-Gren International Symposium Series,* 44, 269-277.

Preisler,G. and Palmer, C. (1989). The blind child goes to nursery school with sighted children. *Child care, health and development,* 2, 484-492.

Preisler,G. and Malmström,S-E. (1990). Development of communication in deaf infants. *Augmentative and Alternative Communication,* 6(2), 122-123.

Stern,D. (1985). *The interpersonal world of the infant.* New York: Basic Books.

Trevarthen,C. (1988). Infants trying to talk. In R. Söderbergh (Ed.),*Children´s creative communication.* Lund:Lund University Press.

Appendix A.

Table 1. The infants´ behaviors:

Facial expressions
-smiles
-laughs
-"looks sad"
-"looks angry"
-"looks sour"
-"looks inquiring"
-"looks wondering"
-"looks surprised"
- makes lip movements

Visual behaviors
-looks at mother´s face
-looks at mother´s activitiess
-looks at own activities
-follows pointings
-deictic gazes

Arm/hand gestures
-points
-gives
-takes
-various gestures (describe)

Explorative behaviors:
-with mouth
-with hand/s
-shakes object
-bangs object
-throws object
-visually

Body movements
-performs repeated body movements with whole or part of the body

Table 2: The mothers´ behaviors:

Verbal behaviors
-signs
-vocalizes
-talks

Bodily contact
-holds the infant
-caresses the infant
-touches the body of the infant

Actions
-describe verbally (e.g presents toys)

Visual behaviors
-looks at infant´s face
-looks at infant´s activities
-deictic gazes

Table 3. The infants´ communicative behaviors:

Reacts to mother´s contact initiatives
-looks at her
-smiles
-body movements
-lip movements
-facial expressions
-becomes stiff
-vocalizations
-other expressions

Elicits contact initiatives from mother
-smiles
-eye contact
-facial expressions
-body movements
-gestures
-head movements
-actions
-signs
-vocalizations
-other expressions

Imitates mother´s signs, actions
-facial expressions
-signs
-body movements
-other expressions

Takes part in prcto-conversations	*Initiates contact*	*Takes part in plays/body - touching games, etc*	*Shows intention*
- body movements	-smiles	-smiles	-eye-contact
- facial expressions	- eye contact	-laughter	-body movements
-gestures	-facial expressions	-facial expressions	-vocalizations
-vocalizations	-gestures	-body movements	-gestures
-other expressions	-vocalizations	-gestures	-vocalizations
	-body movements	-vocalizations	-actions
	-head movements	-other expressions	-other expressions
	- actions		
	-signs		
	-other expressions		

Initiates plays,body touching games	*Avoids contact*	*Reacts to jokes*	*Reacts to teasing behaviors*
- body movements	- visually	-smiles	-smiles
- gestures	-body movements	-laughter	-laughter
- other expressions	-other expressions	-other expressions	-other expressions

Follows simple instructions
-actions
-signs
-other expressions

Table 4: The mothers´ communicative behaviors

Initiates contact:	*Responds to the infant´s actions/behavior*	*Initiates :*
-touch	-signs	-body plays
-eye contact	-speech/vocalizations	-give and take games
-vocalizations	-imitations	-peek-a-boo games
-signs	-other expressions	-symbolic plays
-other expressions		-other plays

Verbal style
-directive
-supportive
-opposive
-dialogues